UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL VEHICLE AND FUEL EMISSIONS LABORATORY
2565 PLYMOUTH ROAD
ANN ARBOR, MICHIGAN 48105-2498

OFFICE OF
AIR AND RADIATION

September 23, 2002 CCD-02-14 (LDV/LDT/MDV/Alt Fuel Convertors)

SUBJECT: Preparing Light-Duty Vehicles and Trucks for Testing at EPA NVFEL

Dear Manufacturer:

Enclosed with this letter are instructions to vehicle manufacturers regarding the preparation of test vehicles prior to delivery to the National Vehicle and Fuel Emissions Laboratory (NVFEL) in Ann Arbor, Michigan for EPA confirmatory testing. These instructions replace EPA's Advisory Circular No. 23B dated June 6, 1990.

Please use these instructions to expedite the testing of your certification and fuel economy data vehicles at NVFEL.

If you have questions about these instructions, please contact Ted Cieslak of the Laboratory Operations Division at (734)214-4500, or your assigned EPA certification representative.

Sincerely,

Gregory A. Green, Director
Certification and Compliance Division
Office of Transportation and Air Quality

PREPARING VEHICLES FOR TESTING AT EPA NVFEL

I. Background - Why Does EPA Test Vehicles?:

A. 40 CFR Part 86.1835-01(a)(1) provides that the Administrator may require submission of test vehicles selected for demonstrating compliance with emission standards to a designated test laboratory. The Agency conducts emission tests at the NVFEL under this provision.

B. 40 CFR Part 86.600.008-77 (d) provides that the Administrator may require fuel economy data vehicles be submitted to a designated test laboratory. The Agency conducts fuel economy tests at the NVFEL under this provision.

II. Applicability:

These instructions are effective immediately and are applicable to all light-duty vehicles, light-duty trucks and medium-duty vehicles being tested for certification and/or fuel economy compliance following the Federal light duty test procedures (FTP).

The instructions are primarily directed at conventionally-fueled vehicles. Please provide written operating instructions and testing procedures for advanced technology vehicles, such as hybrids and fuel cells, to the EPA Certification and Compliance Division representative prior to delivery of the vehicle to NVFEL

III. Preparation of Test Vehicles:

The attachments to this guidance list the preparation requirements for vehicles delivered to the NVFEL in Ann Arbor for testing. The following instructions are designed to facilitate efficient testing of the vehicle.

A. General

1. Two sets of keys, clearly marked with vehicle make, identification number, and model, should be provided with each test vehicle. Please try to limit the size of the key identification tag to no larger than 1 inch by 2 inches.

2. Information pertinent to the testing of the vehicle should be displayed in or on the vehicle in a manner that enables the data to be read from outside the vehicle. Include the following information:

- Manufacturer vehicle identification number
- Location of fuel tank drainage valve
- A fuel tank shutoff valve for gaseous fueled vehicles
- Location of fuel filler door release

- Canister loading information including load port and vent location

Attachment A-1 is an example format to be used for these data. Attachment A-2 is a completed example of A-1.

Special operating instructions, starting procedures, identification of the dynamometer drive wheels, and traction control operation must be submitted with each vehicle. EPA cannot test a vehicle without this information. Attachment A-2 provides an example for supplying this information.

3. Each vehicle must have the appropriate shift schedule (FTP, HWFET, and US06) entered into the data base for the Video's Drivers Aid (VDA) System. The shift schedule information must be entered in the NVFEL CFEIS database prior to the vehicle arriving at NVFEL. If the vehicle is not in the NVFEL CFEIS database, e.g., after-market alternative fueled vehicles, the shift instructions must be provided in advance to NVFEL.

4. Test vehicles should be delivered to and received by EPA no later than two days prior to the scheduled testing. Also, due to storage limitations, vehicles should arrive no more than four days prior to scheduled testing, unless prior arrangements are made with EPA.

5. The vehicle information in Attachment A-1 should be completed and test number(s) assigned in advance of vehicle inspection.

6. Gaseous-fueled vehicles must be delivered with a sample of the same fuel used to fill the vehicle fuel tank. An example of an acceptable sample container is a stainless steel canister with a "Summa" polished surface and stainless steel valve, part number 87-300 available from Thermo Andersen, 770-319-9999. Another acceptable sample canister is part number 29-10621 available from Entech, 805-527-5939.[1] The fuel supplied by the manufacturer will be used for preconditioning, emission testing, and fuel economy testing.

B. Items Associated with the Evaporative Emission Test

1. A drain line, separate from the main fuel line, must originate from the lowest point in the fuel tank(s) and must incorporate a positive shut-off valve and terminate in an accessible place (e.g., under the rear bumper, in the trunk, or near the fuel filler pipe). The line should end with either a 3/8 inch outside-diameter rigid tube or a quick disconnect similar to an Aeroquip Part No. 5602-8-105.

[1]References to specific manufacturers or suppliers do not constitute EPA promotion or endorsement of the equipment items described in this letter.

2. Duplicate type J iron-constantan, 0-500°F thermocouples must be installed and be accessible, terminating in a male type J plug (Honeywell No. 30728096-001 or equivalent). The thermocouple should be installed as near as possible to the volumetric center of the fuel when the tank contains 40 percent of its nominal fuel tank capacity.

3. For vehicles which can be tested utilizing fuel tank heat builds, EPA's fuel tank heating system controllers are compatible with heating pads. If the fuel tank surface area is not easily accessible, the manufacturer should install a fuel tank heating source that will allow fuel tank heating. This heating source (preferably a heating blanket) must comply with the provisions of 40 CFR 86.107-78(a)(4). Also, if the heating apparatus supplied with the test vehicle is electric, it should be capable of operating on a 120-volt, 60 Hz alternating current and have a 10 foot power cord, ending in a U.S.A. conventional three-prong plug.

4. The evaporative emission canister must be accessible and the load and vent ports must be labeled. If not, external labeled access lines must be available.

C. Items Associated with the Dynamometer Portion of the Test.

1. The tailpipes of all vehicles must be equipped with a 2.5 inch stainless steel Marmon flange (Aeroquip/Servicemaster Part No. MFF61196-250S, or equivalent). Flanges must be permanently welded to preclude leaks. The face of the flanges must project 3/8 inch beyond the end of the tailpipes as shown in Attachment A-3 to ensure leak-tight connections with the EPA CVS flanges. Any deviation from this configuration which precludes proper mating with the EPA CVS flange will result in rejection of the vehicle.

2. Flanges must extend far enough beyond the body of the vehicles to ensure adequate accessibility. Vehicles with dual exhaust systems should allow a minimum of 3 inches between flanges with faces parallel to one another to facilitate coupling to the EPA CVS flanges.

3. All front-wheel-drive vehicles must have two sturdy hold-down eyelets (2.5 inch inside diameter) installed. The eyelets should be located on each side of the vehicle forward of the front wheel centerline and at least 6 inches outboard of the vehicle centerline.

4. Rear-wheel-drive vehicles that do not have bumpers adequate for restraining require one hold-down eyelet.

Attachment A-1

Format for Basic Data

Manufacturer Vehicle Identification Number:

Starting Instructions:

Location of Fuel Tank Drain Valve:

Location of Fuel Filler Door Release:

Traction Control Switch Location and Operating Instructions:

Diagram of Fan Placement and Positions:

Attachment A-2

Completed Sample of Format for Basic Data

Manufacturer Vehicle Identification Number:
ABC-12345678

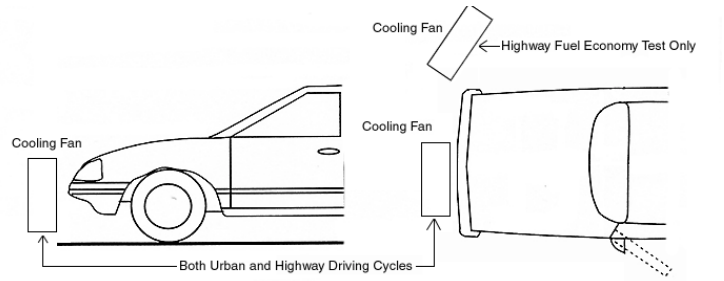
Starting Instructions:
Cold Start – Start engine by turning key to "Start" position Hot Start – Start engine by turning key to "Start" position

Location of Fuel Tank Drain Valve:
Behind right corner of rear bumper

Location of Fuel Filler Door Release:
Release inside glove box, door is on driver's side

Traction Control Switch Location and Operating Instructions:
Center of dash board under radio, labeled TCS. To turn the traction control off, push the TCS button after starting the engine

Diagram of Fan Placement and Positions:



Attachment A-3

Tail Pipe End Flange